What Is Claimed Is:

1. A recording medium for storing a program executable by an information apparatus for implementing a parallel matrix processing method in

5   matrix processing carried out by a shared-memory scalar parallel-processing computer having a plurality of processor modules, said method comprising:

dividing a matrix into small matrix blocks;

10   storing diagonal blocks and small matrix sub-blocks of said small matrix blocks other than said diagonal blocks in local memories of said processor modules;

redundantly processing said diagonal blocks in

15   said processor modules by driving said processing modules to process their own small matrix blocks in parallel; and

updating said matrix with results of processing of said small matrix blocks obtained at

20   said processing step.

2. A recording medium according to Claim 1 wherein said matrix processing is LU factorization applied to said matrix.

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3. A recording medium according to Claim 2, said method further comprising:

extracting candidates for pivots from data of said small matrix blocks processed by said

5 processor modules; and

determining a final one of said pivots with a maximum data value among said candidates in a memory area common to said processor modules, and

wherein said LU factorization is carried out

10 by using said determined pivot.

4. A recording medium according to Claim 2 wherein said LU factorization of said entire matrix is completed by execution of the method comprising:

15 sequentially updating portions of said matrix starting with one on the outer side of said matrix in accordance with a recursive algorithm; and

eventually applying said LU factorization by using one processor module to a portion that

20 remains to be updated inside said matrix.

5. A recording medium according to Claim 1 wherein said matrix processing is Cholesky factorization or a modified version of said

25 Cholesky factorization applied to said matrix.

6. A recording medium according to Claim 5 wherein said Cholesky factorization or said modified version of said Cholesky factorization is carried out to complete said LU factorization of said entire matrix by execution of the method comprising:

sequentially updating portions of said matrix starting with one on the outer side of said matrix in accordance with a recursive algorithm; and

eventually applying said LU factorization by using one processor module to a portion that remains to be updated inside said matrix.

7. A recording medium according to Claim 5 wherein, at said updating step,

a triangular matrix portion of each of said small matrix block to be updated is divided into 2 × N fine blocks wherein the symbol N denotes the number of processor modules; and

said fine blocks are assembled to form N pairs each stored in a local memory area of one of said processor modules to be processed by said processor module.

8.   A   parallel   matrix   processing   method
applied   to   matrix   processing   carried   out   by   a
shared-memory   scalar   parallel-processing   computer
having   a   plurality   of   processor   modules,   said
5   parallel matrix processing method comprising:

dividing a matrix into small matrix blocks;

storing diagonal blocks and small matrix sub-
blocks of said small matrix blocks other than said
diagonal blocks in local memories of said processor
10   modules;

redundantly processing said diagonal blocks in
said processor modules by driving said processing
modules to process their own small matrix blocks in
parallel; and

15   updating   said   matrix   with   results   of
processing of said small matrix blocks obtained at
said processing step.

9.   A shared-memory scalar parallel-processing
20   computer having a plurality of processor modules,
said   shared-memory   scalar   parallel-processing
computer comprising:

a blocking unit dividing a matrix into small
matrix blocks;

25   a   storage   unit   storing   diagonal   blocks   and

small matrix sub-blocks of said small matrix blocks other than said diagonal blocks in local memories of said processor modules;

a processing unit redundantly processing said

5   diagonal blocks in said processor modules by driving said processing modules to process their own small matrix blocks in parallel; and

an updating unit updating said matrix with results of processing of said small matrix blocks

10 produced by said processing means.